



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/742,283	12/22/2000	Stefan Parkvall	2380-289	8178
23117	7590	03/21/2006	EXAMINER	
NIXON & VANDERHYE, PC 901 NORTH GLEBE ROAD, 11TH FLOOR ARLINGTON, VA 22203			SEFCHECK, GREGORY B	
			ART UNIT	PAPER NUMBER
			2616	
DATE MAILED: 03/21/2006				

Please find below and/or attached an Office communication concerning this application or proceeding.

81

Office Action Summary	Application No. 09/742,283	Applicant(s) PARKVALL ET AL.	
	Examiner Gregory B. Sefcheck	Art Unit 2662	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 29 December 2005.
 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1, 3, 5, 8-16, 18, 21-28, 30, 32, 34-41, 43 and 46-50 is/are pending in the application.
 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
 5) ☐ Claim(s) _____ is/are allowed.
 6) ☒ Claim(s) 1, 3, 5, 8-16, 18, 21-28, 30, 32, 34-41, 43, and 46-50 is/are rejected.
 7) ☐ Claim(s) _____ is/are objected to.
 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 a) ☐ All b) ☐ Some * c) ☐ None of:
 1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
 * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date: _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date: _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

- Applicant's Amendment filed 12/29/2005 is acknowledged.
- Claims 1, 5, 8, 9, 14, 18, 21, 26, 30, 32, 39, 43, and 46 have been amended.
- Claims 2, 4, 17, 31, and 42 have been cancelled. Claims 6, 7, 19, 20, 29, 33, 44, and 45 were previously cancelled.
- The previous objections to claims 8, 9, 21, 30 and 46 are withdrawn in light of the present amendments.
- The previous rejections of claims 14-18, 21-25, 39-43, and 46-50 under 35 USC 112, 2nd paragraph are withdrawn in light of the present amendments.
- Claims 1, 3, 5, 8-16, 18, 21-28, 30, 32, 34-41, 43, and 46-50 remain pending.

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 1, 26, 27, 30, 32, and 38 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yuen (US 20030185286A1) in view of Balachandran et al. (US 20020036992A1), hereafter Balachandran.

- In regards to Claims 1, 26, 27, and 38,

Yuen discloses a handoff method in a cellular spread spectrum communications network/system. Referring to Fig. 22, Yuen show mobile 60 (first node) initially communicating data with base station 61 (second node) by both transmitting (first channel) and receiving (second channel; Abstract; claim 1,26,38 – method and units in mobile radio system where data packets are communicated from first node to second node/between one or more base stations and wireless user units over first channel and feedback signal is sent from second node to first node over a second channel).

Yuen shows that mobile 60 may receive a plurality of signals from a plurality of base stations 61, 62 during a handoff operation. Yuen discloses mobile 61 has a monitoring means for monitoring the signal quality of the first received signal and determines the signal quality of the signal received from base station 61 as compared to the signal quality of the signal received from base station 62 and/or a predetermined threshold through a comparison means (Pg. 10-11, paragraphs 173-174; claim 1,26 – first node detector determines condition/signal quality of second channel/uplink).

If the quality of the signal received from base station 61 falls below the predetermined threshold and/or second quality, a handoff is initiated and subsequent data to be transmitted is queued (delayed) until the handoff is completed and channel quality is sufficient to transmit the stored data (Abstact; Pg. 10-11, paragraphs 168-177; claim 1,26 – first node scheduler delaying further transmission over first channel/downlink until quality of second channel/uplink exceeds predetermined

threshold; claims 1,27 - schedules transmission over first channel/downlink based on whether determined condition of second channel/uplink is sufficient).

Yuen does not explicitly disclose the use of an ACK, NACK or lost feedback signal within an ARQ protocol sent back to the first node from the second node over the second channel.

Balachandran discloses method and apparatus for packet size dependent link adaptation for wireless packets. Balachandran discloses the use of ACK/NACK feedback signals within the ARQ protocol for providing reliable data transmission (Pg. 1-2, paragraphs 3, 4, 7, 19-29; claim 1,26 – feedback signal is an ARQ protocol acknowledge signal, negative acknowledge signal or lost signal corresponding to a data packet transmitted over the first channel; claim 1,26 – determining condition of second channel is sufficient to accurately receive feedback signal).

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the method and system of Yuen by utilizing an ARQ protocol feedback signal between the nodes, as shown by Balachandran. ARQ is a protocol well-known in the art for providing reliable communications. The use of ARQ in the system and method of Yuen would provide verification that the signal quality determined to be sufficient for data transmission was maintained throughout the transmission and reception was performed properly.

- In regards to Claim 30 and 32,

Yuen discloses a handoff method in a cellular spread spectrum communications network/system that covers all limitations of the parent claims.

Yuen discloses that the sufficiency of the signal quality may be determined through typical parameters used for signal quality, such as probability of error and signal-to-noise ratio (Pg. 11, paragraph 178; claim 32 – the sufficiency of the second channel is determined so that a probability of error in the received feedback signal is below an error threshold).

Signal-to-interference ratio is another such typical parameter known in the art (claim 30 – predetermined threshold is a signal-to-interference ratio)

3. Claims 13 and 37 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yuen in view of Balachandran as applied to claims 1 and 26 above, and further in view of Garceran et al. (US006522888B1), hereafter Garceran.

- In regards to Claims 13 and 37,

Yuen discloses a handoff method in a cellular spread spectrum communications network/system that covers all limitations of the parent claims.

Garceran discloses a method in a wireless radio communication system for communicating data from base stations to mobile users over forward- and reverse-link channels. Garceran shows that transmission control from base station to mobile unit

Art Unit: 2662

may be controlled based upon conditions other than uplink signal quality, including traffic load at the serving base station and the propagation environment (frequency and speed; Doppler frequency; Col. 3, lines 15-25, 32-45, 50-61; claim 13,37 – controlling transmission over first channel/downlink without regard to the condition/signal quality of the second channel/uplink when another condition is detected).

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the method and system of Yuen by controlling transmission based upon detected conditions other than uplink signal quality, as shown by Garceran, thereby enabling the system to adapt data communication based upon multiple varying conditions of the network, rather than simply based on channel quality.

4. Claims 3, 5, 8-12, 14-16, 18, 21, 22, 28, 34-36, 39-41, 43, 46, and 47 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yuen (US 20030185286A1) in view of Balachandran et al. (US 20020036992A1), hereafter Balachandran, and further in view of Labonte et al. (US005991286A), hereafter Labonte.

- In regards to Claims 3, 9-12, 14, 16, 21, 22, 28, 34-36, 39, 41, 46, and 47, Yuen discloses a handoff method in a cellular spread spectrum communications network/system that meets the limitations of parent claims 1 and 26.

Referring to Fig. 22, Yuen show mobile 60 initially communicating data with base station 61 by both transmitting and receiving (Abstract; claim 14,39 – method and units

in mobile radio system where data packets are communicated from first node to second node/between one or more base stations and wireless user units over first channel and feedback signal is sent from second node to first node over a second channel).

Yuen shows that mobile 60 may receive a plurality of signals from a plurality of base stations 61, 62 during a handoff operation (claim 22,47 – wireless user is communicating with two base stations in a soft handover). Yuen discloses mobile 61 has a monitoring means for monitoring the signal quality of the first received signal and determines the signal quality of the signal received from base station 61 as compared to the signal quality of the signal received from base station 62 and/or a predetermined threshold through a comparison means (Pg. 10-11, paragraphs 173-174; claim 14,39 – first node detector determines condition/signal quality of uplink).

If the quality of the signal received from base station 61 falls below the predetermined threshold and/or second quality, a handoff is initiated and subsequent data to be transmitted is queued (delayed) until the handoff is completed and channel quality is sufficient to transmit the stored data (Abstract; Pg. 10-11, paragraphs 168-177; claim 14 – first node scheduler delaying further transmission over first channel/downlink until quality of second channel/uplink exceeds predetermined threshold; claims 14,39 - schedules transmission over first channel/downlink based on whether determined condition of second channel/uplink is sufficient; claim 9,21,46 – transmitting data packets after a preset delay period).

Yuen does not explicitly disclose the use of an ACK, NACK or lost feedback signal within an ARQ protocol sent back to the first node from the second node over the second channel.

Balachandran discloses method and apparatus for packet size dependent link adaptation for wireless packets. Balachandran discloses the use of ACK/NACK feedback signals within the ARQ protocol for providing reliable data transmission (Pg. 1-2, paragraphs 3, 4, 7, 19-29; claim 14,39 – feedback signal is an ARQ protocol acknowledge signal, negative acknowledge signal or lost signal corresponding to a data packet transmitted over the first channel; claim 14,39 – determining condition of second channel is sufficient to accurately receive feedback signal).

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the method and system of Yuen by utilizing an ARQ protocol feedback signal between the nodes, as shown by Balachandran. ARQ is a protocol well-known in the art for providing reliable communications. The use of ARQ in the system and method of Yuen would provide verification that the signal quality determined to be sufficient for data transmission was maintained throughout the transmission and reception was performed properly.

Yuen discloses the above method as applied to a remote station as a first station, in communication with a base station as a second station, during hand-off. Yuen does not explicitly disclose the base station acting as the first station and performing the functions of signal quality determination and data scheduling/delaying based upon the signal quality determination of feedback communicated from a second, remote station.

Labonte discloses a method and cellular system for communicating data packets between a base station and a mobile user over uplink and downlink channels. Referring to Fig. 3, Labonte shows a signal quality measurement is made of both the uplink and downlink channels at the base station and/or mobile station (Col. 7, lines 32-45; claim 14,39 – method implemented in base station; claim 3,16,28,41 – first node detector to determine condition/signal quality of first channel/downlink; claim 10,11,34,35 – first node is a base station/wireless unit in a radio communications network and second is a wireless unit/base station; claim 10,11,34,35 – first channel is a downlink/uplink and the second channel is an uplink/downlink; claim 12,36 – first node is a radio network controller coupled to one or more base stations in a radio network and second node is a wireless user unit).

A determination is made as to whether the signal quality uplink and downlink is sufficient for packet data communications (Col. 7, lines 50-53; claim 3,16,28,41 – first node controls/schedules transmission over first channel/downlink based on determined conditions of first/downlink and second/uplink channels).

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the method and system of Yuen by enabling both the mobile and base station to perform signal quality determination and data scheduling/delaying based upon the signal quality determination, as shown by Labonte. This modification would permit data transmission based on handoff processing to be controlled by either the mobile or the base station, ensuring transmission and/or reception on sufficient quality channels in either direction to and/or from both the base station and/or mobile.

- In regards to Claim 5, 8, 15, 18, 40, and 43,

Yuen discloses a handoff method in a cellular spread spectrum communications network/system that covers all limitations of the parent claims.

Yuen discloses that the sufficiency of the signal quality may be determined through typical parameters used for signal quality, such as probability of error and signal-to-noise ratio (Pg. 11, paragraph 178; claim 5,18,43 – the sufficiency of the second channel is determined so that a probability of error in the received feedback signal is below an error threshold).

Signal-to-interference ratio is another such typical parameter known in the art (claim 8,15,40 – predetermined threshold is a signal-to-interference ratio)

5. Claims 23-25 and 48-50 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yuen in view of Balachandran and Labonte as applied to claims 14, and 39 above, and further in view of Garceran et al. (US006522888B1), hereafter Garceran.

- In regards to Claims 23-25 and 48-50,

Yuen discloses a handoff method in a cellular spread spectrum communications network/system that covers all limitations of the parent claims.

Garceran discloses a method in a wireless radio communication system for communicating data from base stations to mobile users over forward- and reverse-link channels. Garceran shows that transmission control from base station to mobile unit may be controlled based upon conditions other than uplink signal quality, including traffic load at the serving base station and the propagation environment (frequency and speed; Doppler frequency; Col. 3, lines 15-25, 32-45, 50-61; claim 23,48 – controlling transmission over first channel/downlink without regard to the condition/signal quality of the second channel/uplink when another condition is detected; claim 24,49 – detected condition is when a Doppler frequency of the uplink exceeds a threshold; claim 25,50 – detected condition is when a load of a cell corresponding to the base stations is less than a threshold).

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the method and system of Yuen by controlling transmission based upon detected conditions other than uplink signal quality, as shown by Garceran, thereby enabling the system to adapt data communication based upon multiple varying conditions of the network, rather than simply based on channel quality.

Response to Arguments

6. Applicant's arguments filed 12/29/2005 have been fully considered but they are not persuasive.

- In the Remarks on pgs. 11-13 of the Amendment, Applicant contends that there is no teaching in Yuen of the mobile determining the condition of the downlink channel, determining whether the condition is sufficient to continue receiving a feedback signal, and delaying further transmission of data packets over the uplink channel to a base station until the quality of the downlink channel exceeds a threshold. Applicant further contends that the disclosure of Yuen applies only when data packets have not yet been sent to the base station, therefore there is no scheduling or delay of *further* data packet transmissions.
- The Examiner respectfully disagrees. Yuen discloses that a mobile terminal is initially in communication with a base station. Therefore, paragraphs 173-174 on pgs. 10-11 of Yuen discloses that subsequent data transmission from the mobile depends on a comparison of signal quality of a first received signal to both a second received signal as well as a predetermined threshold. This disclosure of Yuen illustrates that *further* transmission is queued (delayed) until handoff is completed (and the received signal quality is appropriately above the predetermined threshold), therefore the claim limitations are met.
- In the Remarks on pg. 13 of the Amendment, Applicant contends that Labonte does not disclose an intentional delay in transmitting packets over a downlink channel based on the signal quality measurement of the uplink channel.

- The Examiner has relied upon Yuen, as shown above, to teach this claim limitation. The disclosure of Labonte is introduced to illustrate that it would be obvious to use Yuen's method at both the mobile station as well as the base station.
- In the Remarks on pg. 14 of the Amendment, Applicant further contends that the combination of Yuen, Labonte and Balachandran is based on improper hindsight because Labonte is not concerned with scheduling when to transmit data packets to ensure that ARQ feedback signals are received reliably and neither Yuen nor Balachandran teach scheduling further packet transmissions in one direction in an already-established connection based on the condition of the channel in the opposite direction.
- The Examiner respectfully disagrees. As shown above, the disclosure of Labonte is relied upon only to show the desirability of applying the method of Yuen and Balachandran to the stations on both sides of the communication. Furthermore, as also shown above, Yuen does disclose the scheduling of further packet transmissions in one direction in an already-established connection based on the condition of the channel in the opposite direction. Therefore, the claim rejections based on the combination of Yuen, Labonte and Balachandran are proper.

Conclusion

7. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Gregory B. Sefcheck whose telephone number is 571-272-3098. The examiner can normally be reached on Monday-Friday, 8:00am-4:30pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Seema Rao can be reached on 571-272-3174. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Art Unit: 2662

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

GBS
3-15-2006

Seema S. Rao
SEEMA S. RAO 3/17/06
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2600